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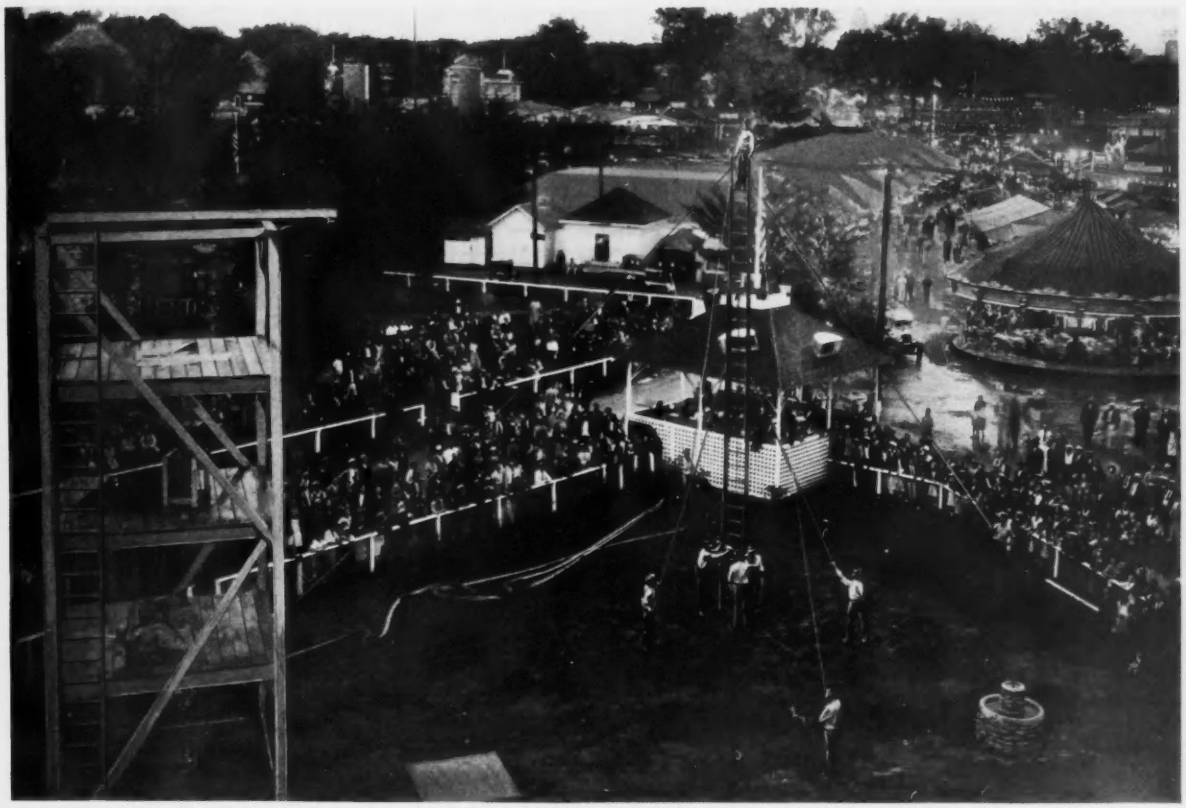
Volunteer Firemen

Professional Journal of the Volunteer Firemen's Section of the National Fire Protection Association

Volume 2, Number 1 **BOSTON, MASSACHUSETTS** **January, 1935**



At the Kansas Free Fair in Topeka, firemen performed on a specially built drill tower. Each night about 15,000 people watched the firemen go through exhibition drills. (*Photo courtesy W. C. Hodges*)

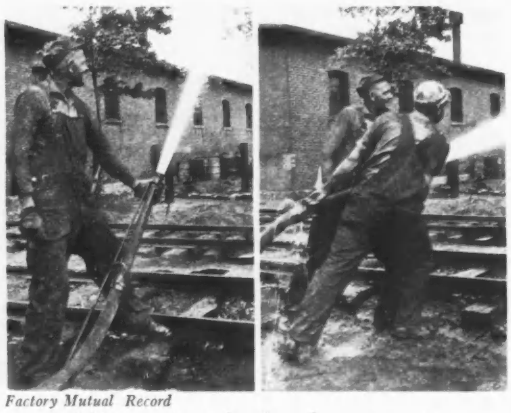
1934—Fire Schools—1935

A Summary of Training Schools Held for Firemen Last Year and Opportunities Offered This Year

TRAINING schools for firemen were held in 39 states during 1934, and four of the nine states not holding schools will hold them in 1935. The total number of schools was over 300 and the attendance was approximately 25,000 firemen. The average attendance was over 500 men per state; and in five states, Indiana, Michigan, Nebraska, New York and Virginia the average attendance was 2,450 per state.

The various agencies sponsoring the schools or co-operating to make them possible are state firemen's associations, fire chiefs' associations, county or regional firemen's organizations, state fire marshals, insurance inspection departments, state colleges and universities, state and federal departments in charge of vocational education, state leagues of municipalities, and similar organizations.

In some states short courses are given in conjunction with annual meetings of firemen's or chiefs' as-



Factory Mutual Record

Drill operations: handling large streams.

sociations. In several states full-time instructors are provided to assist the fire departments of the state in holding schools. A larger number of zone and regional schools throughout a state seem to be gaining in popularity over one or two state-wide schools. In a number of states schools for instructors are held so as to train men to hold zone schools in their own communities. The Fire Prevention Department of the Western Actuarial Bureau holds an annual Fire Department Instructors' Conference in the Middle West which attracts representatives from all parts of the country.

While plans for schools to be held in 1935 are not yet definite in many states, the compilation of data that follows gives an indication of what may be expected in the various states. It is suggested that members of departments wishing to arrange for training get in touch with their state organizations to find out the time and place where schools convenient for them to attend will be held. There will be plenty of opportunity this year for any volunteer who wants to take advantage of training facilities.

ALABAMA. A training school was held at Birmingham from June 11 to July 7 with members of nearby fire departments attending.

ARIZONA. Four experienced firemen are employed as itinerant instructors by the state. They visit fire departments and conduct courses of instruction for two weeks in each town. Classes are held on the discussion basis together with the use of slides and movies for a three-hour period each evening. Classes were held in 28 cities and villages in 1934. Most of the departments in the state are composed of volunteer firemen.

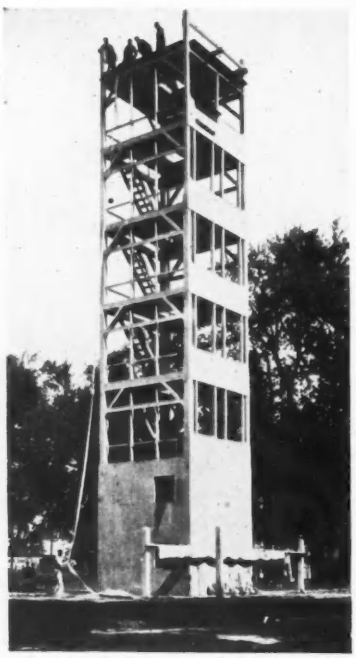
CALIFORNIA has a highly developed program. Officers' conferences and Fire Department Instructor's Courses were given to 476 firemen from 120 departments by a full-time instructor of the State Department of Education in co-operation with the State Fire Marshal's office. This work is being continued this year.

COLORADO. The Fourth Annual Fire College was held at Canon City, July 2-3, with 187 men registered. This year's school will be held at Loveland.

DELAWARE. Classes were held for conference instructors for a period of 12 weeks, 3 hours each evening. Each county in the state was represented with one or more representatives from each volunteer fire company, and the average attendance was 23. The instructors trained at these conferences conducted training classes in individual fire companies to a total of 425 volunteers last year. The same program will be held this year.

FLORIDA. The Fifth Annual Florida Fire College was held at Daytona Beach, July 9-11, with 115 firemen in attendance.

GEORGIA. A few men from Georgia attended the North Carolina school at Durham. Plans are being perfected for an elaborate State Fire College to be held



Typical drill tower of heavy timber construction. An inexpensive type almost any community can afford to provide.

May 8-10 this year at Atlanta at the time of the N.F.P.A. annual meeting. Firemen from all parts of the state are expected to attend.

IDAHO. Classes in first aid and salvage work were held September 4-6 at Rupert with 35 attending.

ILLINOIS. The Tenth Annual Illinois Fire College was held at the University of Illinois, Champaign-Urbana, June 19-22. A total of 288 firemen were enrolled, representing 7 states and 96 towns in Illinois. This year's school will be held at Champaign-Urbana on June 14-15.

INDIANA. The First State Fire School was held at Purdue University, West Lafayette, October 2-4, with 356 in attendance. The places and attendance of the 13 regional schools held for 4-day sessions during the year were as follows: Evansville 192, Madison 82, Richmond 204, Columbus 82, Vincennes 87, Terre Haute 213, Anderson 240, Marion 200, Lafayette 170, Logansport 150, Gary 300, La Porte 270, and Fort Wayne 350. This makes the total attendance in the state 2896. This year the Second State School will be held at West Lafayette in October. An extensive program of 74 regional schools is also planned.

IOWA. The Tenth Annual Fire School was held May 22-25 at the Iowa State College at Ames with 382 firemen from 100 fire departments participating. A district fire school was held in Red Oak June 28-29 with 83 firemen from 19 departments in attendance. The Eleventh Annual Fire School will be held this year May 21-24 at Ames. A number of district schools are contemplated for this year to be held at points in the state which are in areas not adequately served by the central state fire school.

KANSAS. Although no state school was held in 1934 three regional schools were held. One was at Emporia May 24-25, with 81 men attending; another at Pratt, June 6-7, with 50 men; and the third, October 2-3, at Hays, with 78 men attending. Regional schools are now being planned for this year.

KENTUCKY. A State Fire College was held at Newport, August 28-30.

LOUISIANA. The Fourth Annual State School was held at Baton Rouge, April 16-21, with an attendance of 97 and 46 towns represented. The same school is planned for this year at approximately the same date.

MAINE. A program of zone schools was placed in operation in 1934. An instructors' school was held at Portland May 16-20. A regional school was held also at Portland from September 8 to October 6 with an attendance of 14, and another was held at Biddeford from October 27 to November 24 with an attendance of 20.

MARYLAND. The Fifth Annual Short Course for Firemen was held September 4-6 at the University of Maryland at College Park. Over 200 firemen from all parts of the state attended, and 144 volunteer firemen received certificates.

MASSACHUSETTS. Twenty schools were held in the 10 zone training centers with 695 men completing the courses and 185 cities and towns represented. The zone centers are Arlington, Springfield, Worcester, New Bedford, Brookline, Lowell, Pittsfield, Haverhill, Falmouth and Brockton. A conference of zone school instructors was held April 23 at Worcester.

MICHIGAN. Sixteen regional fire schools were held, each covering about 4 counties. Certificates were issued to 1729 men. The State Fire College was held July 16-19 at Manistique. On May 23-24, 255 firemen from 35 nearby towns attended the Detroit Drill School. The Annual State Fire College will be held this year in July at Detroit.

MINNESOTA. The Seventh Annual Northwest Fire School was held at the University of Minnesota, August 13-17, with 250 firemen present. Firemen from adjoining states and Canada also attended this school. District schoo's were held at Brainerd, Alexandria and Rochester, with approximately 50 towns represented by about 350 firemen.

MISSISSIPPI. No regional schools were held, as it was decided to find out just what would be done through the local drill masters. Short courses in addition to the regular routine drills were held in the departments at Jackson, Vicksburg, Meridian, Greenwood, Columbus and Tupelo, with a total of 148 men attending.

MISSOURI. The Fifth Southeast Missouri Fire School was conducted at Caruthersville, August 15-16, with 100 men attending. The Second Missouri Central Fire School was held at Columbia, September 19-20, with 150 men attending. A regional school was held at Joplin, May 16-17, with an attendance of 150.

NEBRASKA. The school for firemen was held in conjunction with the Nebraska State Volunteer Firemen's Association at Omaha, October 16-18, with a registration of 1500. It will be held this year on October 15-17 at Hastings.

NEVADA. An instructor training course was conducted by the Trade and Industrial Education Service of the Office of Education at Reno in May.

NEW HAMPSHIRE. No training activities were undertaken in 1934. A training course for officers and drill masters will be conducted at Concord during January or February this year. Following this a program for zone schools will be set up.

NEW JERSEY. The Monmouth County Fire Chiefs' Association conducted their annual training program. A class of 26 completed a short course at Woodbury Heights. The Vocational Division of the State Department of Public Instruction will conduct classes for either volunteer or paid fire department officers at the request of the department.

NEW MEXICO. The Fifth Annual Fire College was held at Roswell, May 28-30, with 125 firemen registered. This school will be held this year at Santa Fe.

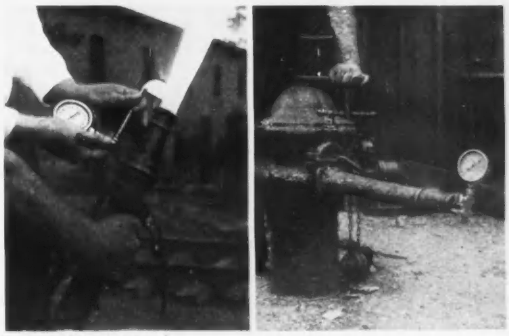
NEW YORK. Training courses for all firemen in New York cities and villages were held in 19 zone centers with a total attendance of about 4500. These zone centers are: Buffalo, Rochester, Syracuse, Utica, Watertown, Ogdensburg, Troy, Albany, Poughkeepsie, Ithaca, Gloversville, Elmira, Binghamton and Glens Falls. Nassau County has its own fire training system. A traveling instructor is available to the 24 cities and villages in the country.

An institute for fire chiefs is held periodically for a two-day session in conjunction with the annual convention of the New York State Association of Fire Chiefs. This course is for officers, and instruction is given on the problems of administration of fire departments.

NORTH CAROLINA. The Annual North Carolina Fire College and Drill School was held at Durham, May 8-10, with an enrollment of 239, representing 61 fire departments in the state and one each in Georgia and South Carolina. Fire College certificates were issued to 186 firemen and Drill School certificates were issued to 145 firemen.

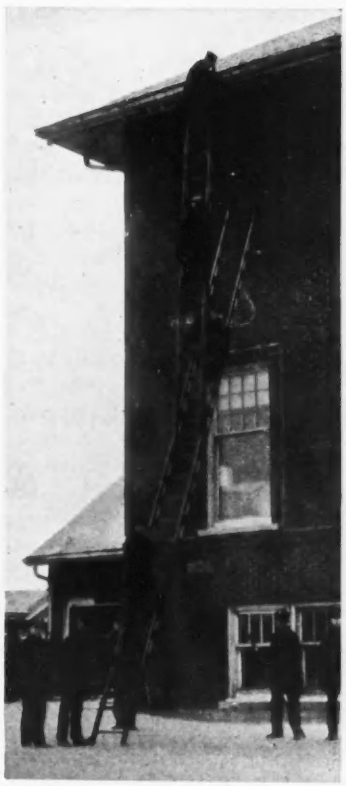
OHIO. The Fifth Annual Fire School was held at the Ohio State University at Columbus, June 26-28, with an attendance of 222 representing 39 towns. Regional schools were held at New Lexington with 50 men, at North Olmstead with 150 men, and at Stow with 400 men present. Plans are being made to hold several additional regional schools this year, and to make the Columbus school an advanced instruction course for officers.

OKLAHOMA. A teacher-training conference was held January 30 at Oklahoma City with 19 men from 2 communities registered. A regional fire school was held in Ponca City, March 8-9, with 68 attending most of whom were volunteers. The First Oklahoma Firemen's Short Course for chiefs and instructors was held at the A. & M. College at Stillwater, September 24-29. This school will be held this year at the same place in September.



Factory Mutual Record

Drill operations: taking nozzle and hydrant pressures.



A lesson in "splicing" two short ladders to reach the roof of a building too high for either one alone,

Zone Firemanship Schools were inaugurated in October. Instruction will be furnished free to 36 zones for one week each year, holding the school in a different city in each zone each year. By 1938 every city and town in the state with 900 population or more will have had a zone school, and every fireman will have had an opportunity to attend one school each year. Plans have been formulated whereby departments of ten or more men may hold evening classes of instruction.

OREGON. The Oregon Fire Chiefs' Association school was held at Corvallis, June 6-8.

PENNSYLVANIA. The Second Annual Fire Service Extension School was held at the State Teachers College at California, August 6-9, with 205 attending. The Lancaster County Fire School was held at Lancaster, July 20-21, with 50 attending. A program intended to serve all sections of the state is being projected by the State Department of Education.

SOUTH CAROLINA. Plans to organize a fire school in 1934 did not materialize, but the facilities have been set up to hold the school this year at Columbia.

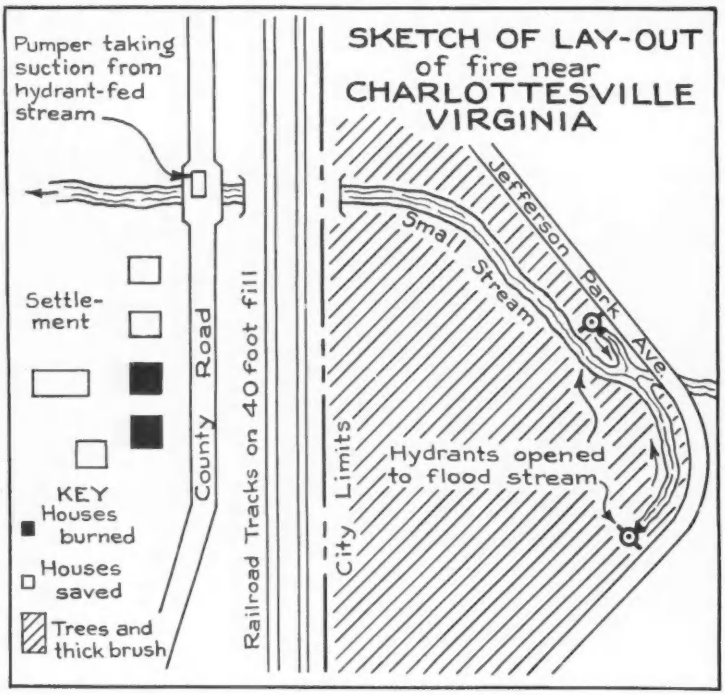
SOUTH DAKOTA. The Fifth Annual South Dakota Fire School was held at Yankton, June 4-8, 500 firemen attending.

TENNESSEE. A regional school was held at Winchester, August 14-15, with 5 towns represented by 21 men. Plans are being made to hold several regional schools this year.

TEXAS. The Fifth Annual School for Texas Firemen was held at the Agricultural and Mechanical College of Texas at College Station, July 16-19, with 467 firemen registered from 195 cities. The state provides a full-time instructor.

UTAH. Ten regional fire schools, ranging in length from 2 to 12 days each with an average attendance of 85, were held in 1934. These schools were at American Fork, Bingham Canyon, Murray, Pleasant Grove, Sandy, Magna, Duchesne, Vernal, Helper and Price.

VERMONT. The Second Annual Firemen's School was held at Montpelier November 8-9. Firemen from six other cities attended,



VIRGINIA. Schools were held in 21 zones with an average attendance of 77 or a total of 1622 firemen. In August each year instructors from each zone meet at Richmond for special training in conducting courses. The 21 zone schools were at Alexandria, Bristol, Charlottesville, Clifton Forge, Danville, Farmville, Harrisonburg, Hopewell, Lawrenceville, Lynchburg, Newport News, Norfolk, Onancock, Orange, Petersburg, Portsmouth, Pulaski, Richmond, Roanoke, Staunton and Arlington County. This year schools will be held in all these zones with the addition of three new ones, Henrico County, Suffolk and Winchester.

WASHINGTON. The State Fire Marshal secured an experienced instructor on leave from the Seattle Fire Department for a three months period. He conducted 8 regional fire schools attended by 428 firemen, and also drills and schools in 29 cities which 397 men attended.

WEST VIRGINIA. The Fourth Annual State Fire Service Extension School was held at Morgantown, July 30 to August 2, with 203 in attendance. This school will be held at Morgantown, July 29 to August 1, this year. Regional schools were held for two-day periods at Charleston, Clarksburg, Morgantown, Martinsburg and Wheeling.

WISCONSIN. Regional schools were held in the following eight towns: Kiel, Waupun, Bruce, Praire du Sac, Grafton; Tisch Mills, Sharon and Cumberland, with a total attendance of 947.

WYOMING. No schools were held in 1934, but one is being planned for this year.

An Unusual Way of Getting Water

Recently a fire in a settlement just outside the city limits of Charlottesville, Virginia, destroyed two dwellings and their contents and burned to death an 11-year-old boy. Ingenuity and quick work on the part of the Charlottesville Fire Company saved the other four houses in the settlement.

The nearest hydrants were a half mile from the fire, as shown in the above diagram, and between them and the fire were two railroad tracks on a 40-foot embankment and a thick growth of trees and underbrush through which the laying of hose lines would have been practically impossible. Water in the small stream furnished the pumper with water for only about five minutes.

The firemen then opened the two hydrants about a half mile within the city limits and flooded the small stream that ran near the settlement. In about half an hour they were able to draft water from the bridge over the stream on the county road. The water thus available for hose lines controlled the fire.

How One Department Keeps Men Interested

A very interesting account of how one volunteer fire department functions comes from Clarence H. Dougal, Chief of the Livingston Volunteer Fire Department (Member N.F.P.A.), Livingston Township, New Jersey, a department which serves a population of 3,500.

The department is entirely volunteer and is composed of 56 firemen and three companies. Under the chief are two assistant chiefs, one being in direct charge of the three companies, which consist of a rescue truck company that does first aid and salvage work; a hose truck company which does ventilating and internal fire extinguishing; and an engine company with a triple combination pumper that has the primary duties of covering exposures and external extinguishing work. Each company has a captain and a lieutenant and ten men. The other assistant chief is in charge of maintenance. Under him is a chief mechanic, and an assistant mechanic, three operators for each piece of apparatus, and two wardens for each company to do traffic duty.

Chief Dougal has prepared an organization chart showing where each man fits into the department and indicating the lines of responsibility together with the duties of the companies. Not all the officers respond to every alarm, but those who do know exactly what their jobs are and no confusion results. The department works under definite rules and regulations.

The department holds three drills each month. Regular business is transacted after drill periods and an annual meeting is held for election of officers. The members of the department apparently are not interested in social meetings as the drill work keeps them busy and interested in their jobs. With the help of a drill tower and by planning different evolutions for each drill period and holding competitive drills within each company and between companies, real excitement is created and the men enjoy the work. De-

International

The Kerns Hotel in Lansing, Michigan, burned with serious loss of life in the early morning hours on December 11, 1934. A number of the victims were members of the Michigan Legislature. Thirty bodies have been removed from the ruins and about thirty more persons suffered injuries. The construction was the brick-walls-with-wood-interior type, in which to fight a fire a fire department is at a serious disadvantage if the alarm is delayed, as it appears it may have been in this case. Such buildings require protection of automatic sprinklers.

partment records show that there is never less than sixty per cent attendance at drills.

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Safety Rules for Stoves and Furnaces

Simple rules for the safe operation of stoves and furnaces are issued to their citizens by the Terra Alta (West Virginia) Volunteer Fire Company (Member N.F.P.A.). They are printed in a small pamphlet together with other valuable suggestions on fire prevention, and are as follows:

Place stoves, furnaces and pipes far enough from walls and woodwork to avoid overheating.

Cover the nearest wooden surfaces with asbestos board, sheet iron or tin; if iron or tin is used, leave an air space behind it.

Protect the floor beneath the stove with sheet metal, and have it extend forward at least twelve inches directly beneath the door to the ashpit.

Surround the base of the furnace with brick, stone or concrete.

Where stove pipes or heating pipes pass through walls, enclose the pipes in galvanized iron, double-walled, ventilated thimbles at least twelve inches wider than the diameter of the pipes.

Make sure that all pipes are free from rust, and that all connections are sound and tight.

Fix a guard about the pipe in the attic, so that nothing may be stored against it.

Be sure to have someone who knows how to carefully inspect chimneys and flues occasionally to see that they are sound.

Never pour kerosene into a coal or wood stove, even when the fire is out.

Never put ashes into wooden boxes or barrels; have a strong metal can for this purpose.

Study the drafts and dampers. Do not let the stove or pipes become red hot. Keep stoves, furnace flues, and chimneys clean.

Do not hang wet clothing, etc., too near a stove. Do not dry wood in an oven.

Never look for a gas leak with a lighted match or flame of any kind.

Make sure that lamps, stoves and heaters that burn gas, and all pipes and their connections, are well made, tight and free from leaks.

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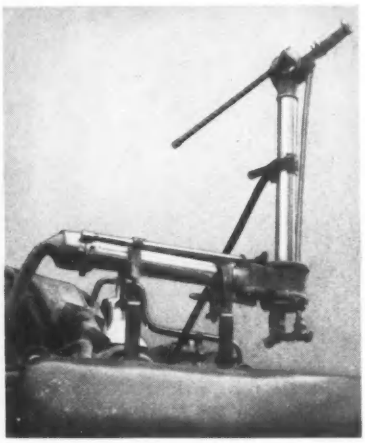
Operating on a Hay-Pile Fire

Fires starting in loose hay in barns are seldom controlled, and usually result in total loss of building and contents. However, E. J. Stewart of the Kansas Inspection Bureau reports a hay fire successfully fought by the Iola, Kansas, Fire Department with no loss to the barn. This barn was located a mile from the city and contained 40 tons of loose alfalfa.

Three firemen responded with a 500-gallon pumper and found the fire was well within the pile of hay. Fortunately water was available from an irrigation pump which furnished water for the pumper, and by laying 800 feet of hose the interior of the roof and the top of the hay were wet down. With the help of farmers, hay knives were used to cut out a circle 20 feet in diameter, and the burning part of the hay was removed.



Combination Cellar and Turret Pipe

The accompanying photograph shows a cellar pipe mounted in reverse position behind the driver's seat on a combination chemical and hose truck to serve as a turret pipe. This device can be dis-assembled for use as a cellar pipe in about three minutes. It was designed by Dell W. Butts and other members of the Darby Fire Patrol No. 2, the volunteer fire company of Darby, Delaware County, Pennsylvania.

Tested with 100 feet of 2½-in. hose from pump to standpipe, and with 250 pounds pump pressure, it produced a steady stream four floors above its location on the truck. With the use of the one-inch bar as a handle, the designer states that the device is successfully operated by one man at the above pressure. This volunteer company uses it for roof fires, as a water curtain, for cooling walls, and for covering a squad entering a burning building.

Answers to December's Topics for Discussion

THE questions to be answered this month were suggested in part by subjects outlined by the Board of Fire Marshals of the Delaware County Firemen's Association of Pennsylvania for discussion at the monthly meetings of companies members of that progressive association. In formulating the answers, credit should also be given to Deputy Chief Horace B. Hutchins, Jr., of Somerville, Mass., President of the Massachusetts Fire Department Instructors' Association, as much of the material was taken directly from one of his lectures on fire fighting methods made before the zone fire schools of that state.

The use of these questions at regular meetings of fire companies offers an opportunity for maintaining the interest and enthusiasm of members which the officers of many progressive departments have been quick to grasp. Readers are invited to suggest questions to be proposed for discussion in future months.

Problem Questions
FOR JANUARY

Suggested for discussion at company and department meetings this month

5

Make a list of five places in the territory served by your company where the biggest fires might occur.

6

The water pressure at a certain central point of a town's water system where good quantities are available is 45 pounds static. From this point is a 6 in. dead-end main 1,000 ft. long on the end of which is a hydrant. Approximately how many good 2½ in. hose lines may be obtained from this hydrant, assuming adequate pumper capacity and the use of 1 in. size nozzles?

Watch for the answers in the next issue of VOLUNTEER FIREMEN

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Q. In getting at a fire in the blind attic of a small dwelling, where should holes in ceilings be cut?

A. In hallways or closets if possible, where only small amounts of ceiling need be damaged. Unless the fire has progressed to unusually large proportions, blind attics need to be opened up only so that one or more small streams may be put directly on the fire. So far as possible large areas of ceiling such as in bedrooms should not be broken into when there are other places where the necessary damage may be done and be less conspicuous. Often there is a hallway, as for example at the head of a flight of stairs, where a hole may be cut. Or access to the attic may be gained through a bedroom closet, by carefully removing the clothes and other contents, piling them up on the bed and covering them with a tarpaulin. Holes which are cut in this manner can be readily and inexpensively repaired by the use of wallboard or a small amount of plaster, and save the plastering and refinishing of a complete ceiling.

4

Q. In dealing with a fire in a mattress or a piece of overstuffed furniture, what steps may be taken to lessen damage to the house?

A. By removing the burning piece and extinguishing the fire outside the house. Such fires are usually of the smouldering variety and require that the piece be pretty well torn apart and considerable water used to completely extinguish all burning parts. The piece can usually be given a dash from a small line to knock down the fire and then be carried out through a door or window and as much water then used as may be needed. Outside spilled water will do no harm and the interior of the house is also spared a certain amount of further smoke damage.

The National Fire Protection Association

Has Occupied Authoritative Position Since 1896—The Background From Which It Serves Volunteer Firemen

THE National Fire Protection Association was organized in 1896 by a group of men interested in reducing the fire losses throughout the United States and Canada. From its small beginning thirty-nine years ago the Association has gradually grown to the point where it has over three thousand members in all parts of the world. In addition its Volunteer Firemen's Section numbers over seven thousand five-hundred affiliated individuals. The Association never has become commercial in character and has steadfastly followed its objective of doing everything in its power to reduce loss of life and property from fire.

Membership in the Association has never been restricted, and any individual or concern interested in any phase of the reduction of the fire loss and fire fighting is eligible to membership.

In October, 1933, it organized the Volunteer Firemen's Section in the interest of the thousands of volunteers throughout the country. There is no other organization that is similar in character throughout the world. The Association has become the clearing house for all that is authoritative on the subject of the fire waste, fire protection and fire prevention.

Technical Standards

The technical standards developed by the Association are widely used as the basis of state, provincial and municipal legislation, as insurance requirements and as a guide by property owners.

There are some 40 current technical committees of the Association. The variety and importance of the subjects covered is shown by the titles of just a few of the committees: Automatic Sprinklers, Building Construction, Electrical, Fire Pumps, Flammable Liquids and Safety to Life.

The work of the preparation of standards and the revision of existing standards goes on unceasingly so that the standards are in step with progress in science and invention. There is no public effort in the history of the nation to which there has been so freely given over so long a period so much thought and painstaking technical investigation as the National Fire Protection Association.

> ***Statement of Objects***
>
> of the National Fire Protection Association as expressed in its Articles of Association:
>
> *"To promote the science and improve the methods of fire protection and prevention; to obtain and circulate information on these subjects and to secure the co-operation of its members in establishing proper safeguards against loss of life and property by fire."*

Education—Publicity

Aside from its technical work, the Association devotes a large proportion of its time and effort to the education of the general public in the prevention of the fire waste. Literature distributed by the Executive Office of the Association is prepared with the object of educating people generally in fire prevention. It is put into popular form so that anyone, whether familiar with the subject or not, is able to educate himself, protect his own property, and give advice to his neighbor. The International Fire Prevention Week campaign conducted throughout the United States and Canada every fall has been sponsored and promoted by the National Fire Protection Association. The Association meets annually in a four-days' convention, at which the members have an opportunity to discuss the latest developments in fire protection and prevention.

The Association issues a QUARTERLY MAGAZINE which is unique in providing special articles on fire hazards, fire protection and fire prevention. The Association maintains a Fire Record Department, and the information developed in this department is printed in the magazine, providing an indispensable amount of information for those who are interested in fire causes and fire prevention. All important fires that occur throughout the world, with special references to their origin, extent and manner of extinguishment, are described in the QUARTERLY MAGAZINE. The Association issues a monthly news bulletin to its members, giving current items of interest on any developments in the field so that the members are constantly kept up to date on these activities. Bulletins on various fire hazards and special posters are issued from time to time for general public distribution.

All these publications are issued to volunteer fire companies that are members of the Volunteer Firemen's Section, and in addition each fireman affiliated receives VOLUNTEER FIREMEN, the monthly journal of the section.

Membership

Membership is open to any individual or organization interested. No initiation fee is charged, the only expense is the annual dues. The membership plan is discussed on page 9 of this issue.

Membership in the Association pledges no one to any special course of action. The headquarters of the Association are at 60 Batterymarch Street, Boston, Mass. Sample copies of the literature issued by the Association or information on the work of the Association will be gladly sent to anyone interested.

Volunteer Firemen

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Volume 2 **January, 1935** Number 1

What the N.F.P.A. Does Not Do Elsewhere in this issue we describe what the National Fire Protection Association does. We should also state what the Association does not do.

The Volunteer Firemen's Section is not set up for the purpose of holding state and regional meetings or performing the various other functions for which local firemen's associations are organized. We urge all departments to support their local associations in promoting the general welfare of the fire departments in their community. While we are interested in the promotion of all matters of benefit to firemen, we are not offering any plan involving death benefits, pensions or insurance.

Practically all state firemen's associations and fire marshals are cooperating with the Volunteer Firemen's Section, realizing that we render a special service to firemen throughout the United States and Canada by furnishing on a national scale valuable technical information and service supplied through our many publications and correspondence, and nowhere else available.

Program of the Volunteer Firemen's Section Because VOLUNTEER FIREMEN is now reaching a large number of new members, we restate the program of the Volunteer Firemen's Section:

1. The interchange of experience among volunteer fire departments.

2. The development of a medium for broadcasting new developments and new ideas of benefit to volunteer fire departments.

3. The development of standard practices and methods for fire fighting by volunteer fire departments.

4. The promotion of fire prevention work in rural districts.

5. The promotion of the organization of new volunteer fire companies and extension of the service of existing companies where necessary.

We urgently ask those readers not now members of the section to bring about a discussion of the section at the next meeting of their company.

City Burned Down Eighteen Times We believe that a prize case of indifference to disastrous fires is the City of Armagh, a town of 8,000 people in Northern Ireland. We have it on authority of *Fire*, the official organ of the British Fire Service, that this city has burned down eighteen times in the course of its history. Up until about five years ago the nearest fire engine was thirty-five miles away. Less than five years ago a fire brigade was established and a pumping engine provided.

A Good Book for Volunteers An intensely interesting story of volunteer fire departments and volunteer firemen written in novel style by a volunteer fireman, is now off the press. Every volunteer fire department in the country should have at least one copy of this valuable book, "The Volunteer Fire Company," in their quarters so that every fireman may have a chance to read it. It contains a lot of fundamental information about the organization and operation of volunteer fire companies. It will do much to keep alive the interest of the men in their work.

Members Now Exceed 7500 Since the last issue 23 volunteer fire departments with 517 firemen have affiliated with the Volunteer Firemen's Section, and 22 other departments with 483 men have renewed their memberships. The 23 new members bringing the total individual membership to 7,507, includes the following departments:

Safford Fire Department, Safford, Arizona.

Redding Fire Department, Redding, California.

Oswegatchie Fire Co. No. 4, Inc., Waterford, Connecticut.

Lewes Fire Department, Inc., Lewes, Delaware.

Citizens' Hose Company No. 1, Smyrna, Delaware

Bunker Hill Volunteer Fire Company No. 1, Bunker Hill, Illinois.

Woodstock Fire Department, Woodstock, Illinois.

Canadian Cottons, Ltd., Gibson Mills, Marysville, New Brunswick.

Canton Fire Department, Engine House 3, Canton, New York.

East Rockaway Fire Department, East Rockaway, New York.

Point Pleasant Volunteer Firemen's Association, Point Pleasant, New York.

Sharon Springs Fire Department, Sharon Springs, New York.

Worcester Hose Company, Worcester, New York.

Kentville Volunteer Fire Department, Kentville, Nova Scotia.

Finleyville Volunteer Fire Department, Finleyville, Pennsylvania.

Port Colborne Fire Company, Port Colborne, Ontario.

South Porcupine Fire Department, South Porcupine, Ontario.

Ridley Park Fire Company No. 1, Ridley Park, Pennsylvania.

Atlantic Sugar Refineries, Montreal, Quebec.

Noranda Mines Fire Department, Noranda, Quebec.

Rapid City Fire Department, Rapid City, South Dakota.

Orange Volunteer Fire Department, Orange, Virginia.

Kirkland Fire Department, Kirkland, Washington.

MEMBERSHIP PLAN

Volunteer Firemen's Section National Fire Protection Association

WHERE twenty or more firemen in a volunteer company or department affiliate with the Volunteer Firemen's Section the cost is 50 cents a year *per man*. Each fireman will receive one copy of VOLUNTEER FIREMEN, the monthly journal of the Volunteer Firmen's Section, mailed regularly to his home address. The company or department automatically becomes a member of the National Fire Protection Association and is entitled to full privileges of membership. All the literature regularly issued to N.F.P.A. members is mailed to headquarters of the company or department.

Membership may be applied for by one member of the company or department collecting 50 cents for each of the 20 or more members and making a single remittance for the group, or the company or department may take a membership for its men and make a single remittance from the company or department treasury.

Companies With Less Than Twenty Members

Because of the large amount of material mailed to members, not less than $10.00 can be accepted from any company or department for membership dues. In the case of companies or departments with less than twenty men this means that the cost divided among them will be slightly higher per man. Of course, some such companies or departments may prefer to make a single remittance of $10.00 from the company or department treasury. In other cases a few interested citizens, not members of the company or department, may be glad to contribute 50 cents apiece to make up the required minimum of twenty, so that the members may secure the rate of 50 cents per man.

These companies or departments have full privileges of N.F.P.A. membership as above, and each member receives the monthly magazine, VOLUNTEER FIREMEN, at his home.

Pyrene Prize Letter Contest

More Awards for Best Letters on Actual Fires Put Out With Fire Extinguishers

THIS MONTH'S WINNERS

FIRST PRIZE — $10.00

HARRY CREWS, *Chief*,
Fire Department, Lafayette, Colorado

Saves 10 Tons of Explosives

"It was the middle of July, and being second engineer at our mine, I was alone at the time. The electrician had been working on the transformers and dropped a lighted cigarette which finally caught some dry weeds and grass on fire. It made rapid headway to the powder house which contained over ten tons of high explosives. The blaze had reached the powder magazine and was burning the foundation when I noticed it.

"Although our fire equipment at the mine is modern, it is also stationary. The powder house being too far away to use the hose, I used two 2½-gallon foam extinguishers and had the fire out in a short time, saving the company considerable money."

SECOND PRIZE — $3.00

CHARLES A. REED, *2nd Asst. Chief*,
Brooklyn Hose Co. No. 3, Lewistown, Pa.

Extinguisher Quicker Than Hose

"At one of our large service stations last September the electric wires to a motor running a gasoline pump became short circuited and threw hot sparks on the pump which immediately burst into flame. When our company arrived we realized there was no time to lose and in less than a fraction of a minute we had the fire under control with a 2½-gallon soda-acid extinguisher. If we had taken time to lay hose the fire would have gotten so hot that the tanks would undoubtedly have let go and caused thousands of dollars' worth of damage."

THIRD PRIZE — $2.00

JETER E. WARDREP, *Chief*,
Volunteer Fire Dept., Jefferson City, Tenn.

$200,000 Girls' Dormitory Saved

"Last month we had a call to the Carson Newman College where a 3-story girls' dormitory was on fire. All the girls were at a football game.

"I arrived ahead of the fire truck and found the door locked. After breaking the door down I found the fire had started in a dresser drawer and was destroying the dresser and other contents of the room. The watchman and I quickly put it out with two 2½-gallon soda-acid extinguishers. Our city depends upon pumps at the reservoir to furnish pressure and we do not have a pumper. Considering the location of the fire and the fact that we have only 1,000 feet of hose, I feel that the two extinguishers saved the $200,000 building."

HONORABLE MENTION

CARLTON LILLAGORE,
Chews Volunteer Fire Co. No. 1,
Gloucester Township, N. J.

AUGUST EGGERT,
Volunteer Fire Dept., Roselle, Ill.

RICHARD HILL,
Windber Fire Co., Windber, Pa.

WHY not write down the story of some experience you have had with putting out a fire or saving a life with an approved fire extinguisher and make yourself eligible for a cash prize? Just tell about one of these experiences in your own words in a short letter and send it to us.

Co-operatively with the Pyrene Manufacturing Company of Newark, N. J., VOLUNTEER FIREMEN is awarding the following cash prizes each month: First Prize, $10.00; Second Prize, $3.00; Third Prize, $2.00. The contest is judged each month by the engineering staff of the National Fire Protection Association and the editors of VOLUNTEER FIREMEN.

CONTEST RULES

1. Contestants in the Pyrene Prize Letter Contest must be members of their local fire department.
2. Letters are to describe actual experiences where any approved fire extinguisher of any make has saved lives or property.
3. Trade names may be used but will be deleted in publication. Publishers reserve the right to edit winning letters to permit publication.
4. Each contestant automatically vouches for the truth of the facts presented from his own or others' experiences.
5. Only one letter may be submitted each month.
6. Letters must be legibly written in ink or typewritten on white paper, one side only. Preference will be given to letters not over 250 words in length.
7. Letters received after the 15th of the month will be judged in following month's competition.
8. Monthly prizes in cash will be: 1st, $10.00; 2nd, $3.00; and 3rd, $2.00.
9. Address contest letter to Pyrene Prize Letter Contest, National Fire Protection Association, 60 Batterymarch St., Boston, Mass.

THROW AWAY YOUR SODA-ACID CHARGES

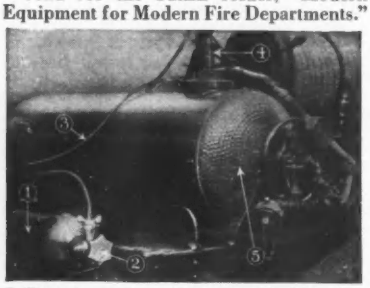
Now You Can Have All the Advantages of a Booster Pump at a Fraction of the Cost

Fire departments, equipped with 40-gallon chemical tanks, now can eliminate the mess and trouble of recharging with chemicals. The new Kidde 40-gallon tank conversion supplies the pressure for discharging chemical tanks and makes recharging an easy matter.

The Kidde conversion consists of a cylinder of compressed carbon dioxide gas which is connected to the 40-gallon tank by means of small bore hose. To operate it, you open the valve on the conversion cylinder and discharge gas into the 40-gallon tank until the pressure gauge shows the pressure you want. Then, when you open the water valve, you will get a hose stream with better range than you ever had before.

To recharge, you simply fill the 40-gallon tank with water. One charge of gas in the conversion will empty a 40-gallon tank 4 to 6 times. A recharge for the conversion cylinder costs no more than one soda and acid charge. Conversions are available for both single or double tanks and can be easily installed by any mechanic.

Send for the FREE folder, "Modern Equipment for Modern Fire Departments."



1. Kidde Conversion cylinder of gas. 2. Valve Controlling gas. 3. Hose connecting conversion and tank. 4. Safety valve. 5. Forty gallon tank.

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BLOOMFIELD . . . NEW JERSEY

Manufacturers of LUX Carbon Dioxide (CO_2) Extinguishers and Kidde Pure Water Extinguishers.

Fire Stream Calculations

Figuring Friction Losses to Obtain Good Streams With Various Layouts

By Chief J. W. Just
Fire Department Instructor, Illinois Inspection Bureau

A GOOD fire stream is defined as one that reaches the seat of the fire in approximately a solid stream. The size of the fire, of course, determines the size and number of streams necessary to cope with it. Small and incipient fires can often be well handled with a soda-acid or water pump tank extinguisher; they may require a booster line or large chemical line, or a stream from a 1½-in. hose line with a ½-in. nozzle tip. Little difficulty is encountered anywhere in supplying sufficient water at adequate pressure for small stream equipment, and, consequently, little need be said regarding it. Rather, care should be exercised not to furnish too much pressure for these small line streams.

Moderate to fair-sized fires require larger hose and larger nozzles in order that a greater volume of water may be available to reach and quench the burning material. Two and one-half inch rubber lined hose with nozzles ranging in size from as small as ¾-in. to as large as 1¼-in., depending on the magnitude of the fire, is usually the medium for carrying and discharging the water on fires in this class. It is at this point that we are faced with the problem of friction loss in the hose.

Friction loss in fire hose is caused by the resistance between the flowing water and the inside wall of the hose. This loss in energy is usually expressed in pounds per square inch. It increases when the volume of water that passes through the hose is increased. It increases directly with the length of hose for a given flow.

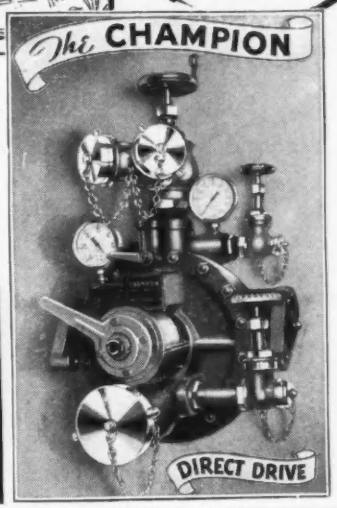
Nozzle pressures of 40 to 60 pounds on nozzles up to 1¼-in. in size will give streams which may be classed as good, and which can be handled without special appliances. When no fire engine pumpers are available, that is, when hose lines can be taken only direct from fire hydrants, it is not often that these pressures at the nozzle can be obtained, except only when small nozzles are used or when the fire hydrants pressures are quite high. When fire engines are available we need only know the length of the hose line and the size of the nozzle on the line in order to determine at what pressure the pumper must be operated to overcome the friction loss in the hose line and obtain a pressure of 40 to 60 pounds at the nozzle.

Let us assume that we desire a pressure at the nozzle of approximately 50 pounds, the average between the 40 and 60 pounds mentioned. In order to know the friction loss occurring in 100 feet of hose with approximately this pressure at the nozzle, it is necessary to know the size of the nozzle tip being used, as 50 pounds on a ¾-in. nozzle denotes a considerably less quantity of water being discharged than is discharged when we have 50 pounds on a 1¼-in. nozzle. Consequently, we will have considerably less friction loss per 100 feet of hose when the ¾-in. nozzle is being used than when the 1¼-in. nozzle is used.

In attacking the problem as to the proper pressure to carry at the pumper with various lengths of hose lines and sizes of nozzles, it should be understood that the figures and results here given are somewhat approximate, as the important thing is to give friction loss figures that can be remembered quite easily and still be reasonably accurate.

A friction loss figure of 4 pounds per 100 feet of hose can be used when using a ¾-in. nozzle, 7 pounds for a ⅞-in. nozzle, 10 pounds for a 1-in., 18 pounds for a 1⅛-in. and 25 pounds for a 1¼-in. It will be noted that the size of the tip im-

"I'M PROTECTING MY TOWN WITH A CHAMPION ...I'M TAKING NO CHANCES"



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It is built for the protection of your community as no other fire pump was ever built! It has no treacherous jaw clutch to worry about. No grinding gears to run dry. No misalignment can ruin the motor because the drive shaft FLOATS.

And above all other Front Mounted Pumps, it is the Champion! Again we say BAR NONE, because it has stamina—endurance! Open your engine throttle for **650 gallons per minute!** Let it run day and night for 48 hours, or 48 DAYS, continuously, ☞ WITHOUT A STOP FOR OIL OR GREASE. ☞ It won't need any because a 3-year supply of lubricant has been sealed in the New Departure Ball Bearings.

As the Champion it has pressure! So terrific that at least 2 or 3 strong men must hold a 1-inch nozzle.

Fire Chiefs can choose the fighting force, the stream pressure, they like best ☞ 80 lbs., 100 lbs., 120 lbs., 160 lbs., 200 lbs., 250 lbs., according to the nozzle tip they prefer.

Capacity up to 650 GPM from Hydrants
and/or 500 GPM from draft at 120 lbs. gauge pressure.

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Can be mounted on any chassis, old or new. Easily atta hed by garage mechanics.

Because Champions are Built to stay Built, we invite any test and any comparison. Yours anytime for 30 days' free try-out.

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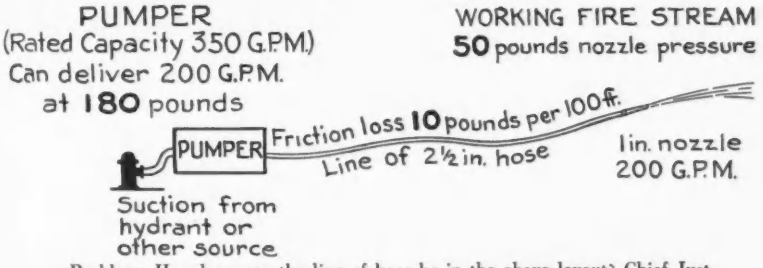

Problem: How long can the line of hose be in the above layout? Chief Just tells how to solve such a problem by a simple mental calculation.

mediately suggests the friction loss figure to use.

Fifty pounds on a ¾-in. nozzle denotes a flow of 118 gallons per minute; on a ⅞-in. nozzle, 160 gallons per minute; on a 1-in., 209 gallons per minute; on a 1⅛-in., 265 gallons per minute; and on a 1¼-in., 326 gallons per minute.

Solving a problem, we will assume that we have a layout from the pumper of 400 feet of 2½-in. hose with a 1⅛-in. nozzle. The pressure that it will be necessary to carry at the pumper will be the 50 pounds that is wanted at the nozzle plus the friction loss in the hose. The friction loss in 100 feet of the hose with the 1⅛-in. nozzle will be taken as 18 pounds; so in 400 feet it will be 18 pounds multiplied by 4, which is 72 pounds. Now, 50 pounds plus 72 pounds friction loss is 122 pounds, the pressure to be carried at the pumper. If the nozzle is on the roof of a two-story building, we will have to add 10 pounds to the 122 pounds (5 pounds per story), which would require 132 pounds per square inch to be carried at the pumper.

Too much pressure on the nozzle results in poor fire streams as well as too little pressure. Excessive pressure causes the stream to break up and spray. So it is just as important that the pumper operator does not operate the pumper at too high a pressure as too low a pressure.

□ □ □ □ □

A Fire Hazard in the Air

Tests made by the U. S. Bureau of Standards show that it is dangerous for airplanes to fly over oil fields. It was discovered that columns of natural gas mount more than a mile high into the sky before becoming dissipated, and that a single spark from the exhaust of an airplane could ignite them. The resulting explosion would wreck the plane and possibly do other damage.

Just off the press . . . .

The Volunteer Fire Company

By William Draper Brinckloe

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Books and Bulletins

The author of this new book describes himself as "an old volunteer fireman from a very old company." He sets forth his dearly bought experience to help his brother firemen. Mr. Brinckloe was the leading spirit in the organization of the Volunteer Firemen's Section. His untimely death prevents his participation in the Section's development, but his forceful character, good judgment and experience live vividly in the pages of this book. Written for the use of volunteer fire companies, private fire departments, farmers' organizations, civic organizations, women's clubs, firemen's schools, insurance men and citizens generally, it is not in any sense a textbook, but an intensely interesting story of volunteer fire departments and volunteer firemen. A dozen leading fire protection engineers who reviewed the manuscript for technical accuracy all reported they found the text as interesting reading as a good novel and could not put it down until they had read every page.

Mr. Brinckloe, as President of the Easton, Maryland, Fire Department, the Maryland State Firemen's Association and other fire fighting organizations, a member of the American Institute of Architects, the American Society of Agricultural Engineers, the American Legion and other organizations, and a writer of national reputation, presents this story, which is at once fascinating reading and technically accurate. The book is sponsored by the Committee on Farm Fire Protection of the National Fire Protection Association which has reviewed it and finds all its recommendations consistent with the official standards of the Association.

The book is an attractive cloth bound volume of 168 pages with 24 illustrations of volunteer fire department apparatus, equipment and fire fighting methods. The book is published by the National Fire Protection Association at the nominal charge of $1 per copy postpaid.

ORDER FORM

National Fire Protection Association **Date** . . . . . .

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